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Abstract

MAXIMUM DENSITY OF NEUTRONS IN A REACTOR WITH LIMITED HEAT-UP OF THE COOLANT

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Pulse-type homogeneous and heterogeneous reactors with one-way flow of the coolant have practically the same limit to which the neutron density can be increased. The maximum density is roughly equal to the energy which can be imparted to one volume unit of the coolant during one heating cycle divided by the energy liberated during one fission. If the design of the reactor is such that the coolant must be kept from plasma state, $n_{max.} \approx 10^{14}$ cm^{-3}. The limit can be extended by making use of the oncoming motion of the coolant streams.

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